National Institute of Environmental Health Sciences

Urban climate: Impacts on energy use, comfort and health

Author(s): Davies M, Steadman P, Oreszczyn T
Book: A Handbook of Sustainable Building Design and Engineering: An Integrated Approach to Energy, Health and Operational Performance
Year: 2009
Publisher: Earthscan (Sterling, VA)

Abstract:

One of the best-known effects of urbanization on the local climate is urban warming -- this phenomenon is commonly referred to as the urban heat island (UHI). A range of factors vary between rural and urban areas and contribute to the UHI -- for example, the thermal properties of materials, the height and spacing of buildings and air pollution levels. These factors result in more of the sun's energy begin captured, absorbed and stored in urban surfaces compared to rural surfaces during the day and a slower loss of this energy at night, thus resulting in comparatively higher air temperatures. In addition, less evaporation (with the consequent reduction in associated cooling) takes place in the typically drier urban areas. Finally, urban areas also have greater inputs of heat as a result of the high density of energy use in cities. All of this energy (used in buildings and for transport) ultimately ends up as heat. Strategic planning is therefore required that takes account of the above factors, particularly in the context of climate change.

Source: http://www.routledgementalhealth.com/books/details/9781844075966/

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Meteorological Factors, Temperature

Air Pollution: Interaction with Temperature, Ozone, Particulate Matter

Temperature: Extreme Cold, Extreme Heat, Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Urban

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact:

specification of health effect or disease related to climate change exposure

Injury, Morbidity/Mortality

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Children, Elderly

Other Vulnerable Population: Pre-existing conditions; Socially isolated

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified